

Claims

[c1] 1. A bearing apparatus for a bicycle hub comprising:
a bearing member comprising:
an inner peripheral surface for receiving a hub spindle therein;
a bearing surface for engaging a bearing; and
an interlock portion; and
a first lock member comprising:
an inner peripheral surface for receiving the hub spindle therein; and
a mating portion for engaging the interlock portion of the bearing member so that the bearing member is nonrotatably fixed relative to the first lock member.

[c2] 2. The apparatus according to claim 1 wherein the inner peripheral surface of the bearing member comprises a press fit portion structured to be press fit to the hub spindle.

[c3] 3. The apparatus according to claim 1 wherein the interlock portion is disposed on an outer peripheral surface of the bearing member.

- [c4] 4. The apparatus according to claim 3 wherein the mating portion is disposed on an inner peripheral surface of the first lock member.
- [c5] 5. The apparatus according to claim 1 wherein the interlock portion is disposed on an end face of the bearing member.
- [c6] 6. The apparatus according to claim 5 wherein the mating portion is disposed on an end face of the first lock member.
- [c7] 7. The apparatus according to claim 1 wherein the first lock member further comprises a spindle mating portion shaped to nonrotatably fix the first lock member relative to the hub spindle.
- [c8] 8. The apparatus according to claim 1 further comprising a second lock member, wherein the second lock member comprises:
 - a spindle coupling portion for axially retaining the second lock member to the hub spindle; and
 - a collar that engages the first lock member for axially retaining the first lock member to the hub spindle.
- [c9] 9. The apparatus according to claim 8 wherein the spindle coupling portion comprises a threaded outer peripheral surface structured for mating with a threaded inner

peripheral surface of the hub spindle.

- [c10] 10. The apparatus according to claim 1 wherein the inner peripheral surface of the bearing member comprises a female threaded portion structured to mate with a male threaded portion of the hub spindle.
- [c11] 11. The apparatus according to claim 10 wherein the interlock portion is disposed on an outer peripheral surface of the bearing member.
- [c12] 12. The apparatus according to claim 11 wherein the mating portion is disposed on an inner peripheral surface of the first lock member.
- [c13] 13. The apparatus according to claim 12 wherein the first lock member further comprises a spindle mating portion shaped to nonrotatably fix the first lock member relative to the hub spindle.
- [c14] 14. The apparatus according to claim 13 further comprising a second lock member, wherein the second lock member comprises:
 - a spindle coupling portion for axially retaining the second lock member to the hub spindle; and
 - a collar that engages the first lock member for axially retaining the first lock member to the hub spindle.

- [c15] 15. The apparatus according to claim 14 wherein the spindle coupling portion comprises a threaded outer peripheral surface structured for mating with a threaded inner peripheral surface of the hub spindle.
- [c16] 16. The apparatus according to claim 10 wherein the interlock portion is disposed on an end face of the bearing member.
- [c17] 17. The apparatus according to claim 16 wherein the mating portion is disposed on an end face of the first lock member.
- [c18] 18. The apparatus according to claim 17 wherein the first lock member further comprises a spindle mating portion shaped to nonrotatably fix the first lock member relative to the hub spindle.
- [c19] 19. The apparatus according to claim 18 further comprising a second lock member, wherein the second lock member comprises:
 - a spindle coupling portion for axially retaining the second lock member to the hub spindle; and
 - a collar that engages the first lock member for axially retaining the first lock member to the hub spindle.
- [c20] 20. The apparatus according to claim 19 wherein the spindle coupling portion comprises a threaded outer pe-

ipheral surface structured for mating with a threaded inner peripheral surface of the hub spindle.

[c21] 21. A bicycle hub for rotatably mounting a wheel to a bicycle frame, wherein the hub comprises:

a hub spindle having a first end portion and a second end portion, wherein the first end portion comprises:

- a male threaded portion; and
- an interlock portion disposed axially outwardly of the male threaded portion;

a hub body disposed around the hub spindle, wherein the hub body includes a pair of hub flanges;

a first bearing assembly disposed at a first end of the hub body between the hub body and the hub spindle, wherein the first bearing assembly comprises:

- a first cup supported to the hub body;
- a first cone comprising:
- a female threaded portion for engaging the male threaded portion of the hub spindle; and
- an interlock portion; and
- a plurality of first rolling bearings disposed between the first cup and the first cone;

a lock member for locking the first cone with respect to the hub spindle, wherein the lock member comprises:

- a first mating portion for nonrotatably mating with the interlock portion of the hub spindle; and

a second mating portion for nonrotatably mating with the interlock portion of the first cone; and a second bearing assembly disposed at a second end of the hub body between the hub body and the hub spindle, wherein the second bearing assembly comprises: a second cup supported to the hub body; a second cone supported to the hub spindle; and a plurality of second rolling bearings disposed between the second cup and the second cone.